

What is claimed is:

1. A biaxially textured article comprising a rolled, biaxially textured metallic substrate characterized by a rotated cube texture wherein a (100) cube face thereof is parallel to a surface of said article, and wherein a [100] direction thereof is at an angle of at least 10° relative to a rolling direction thereof, said substrate having thereon at least one epitaxial layer of another material.
2. An article in accordance with Claim 1, wherein said [100] direction is at an angle of at least 30° relative to the rolling direction.
3. An article in accordance with Claim 2, wherein said [100] direction is at an angle of about 45° relative to the rolling direction.
4. An article in accordance with Claim 1, wherein said substrate is further characterized by an x-ray diffraction phi scan peak of no more than 20° FWHM.
5. An article in accordance with Claim 1, wherein said substrate further comprises grains having an average size of no more than 10  $\mu\text{m}$ .
6. An article in accordance with Claim 5, wherein said substrate further comprises grains having an average size of no more than 5  $\mu\text{m}$ .
7. An article in accordance with Claim 6, wherein said substrate further comprises grains having an average size of no more than 1  $\mu\text{m}$ .

8. An article in accordance with Claim 1, wherein said substrate further comprises grains having an aspect ratio of at least 10.
9. An article in accordance with Claim 1, wherein said substrate is further characterized by a brick-floor microstructure.
10. An article in accordance with Claim 1 wherein said another material comprises at least one of the group consisting of electromagnetic devices and electro-optical devices.
11. An article in accordance with Claim 10, wherein said device further comprises a superconducting material.
12. An article in accordance with Claim 10, wherein said device further comprises a ferroelectric material.
13. A biaxially textured article comprising a biaxially textured metallic substrate having a microstructure characterized by a  $\{100\}\langle 100 \rangle$  crystalline structure orientation which is at an angle of at least  $10^\circ$  relative to an ideal cube texture orientation of  $\{100\}\langle 100 \rangle$ , said substrate having thereon at least one epitaxial layer of another material.
14. An article in accordance with Claim 13, wherein said  $\{100\}\langle 100 \rangle$  orientation is at an angle of at least  $30^\circ$  to the ideal cube texture orientation.

15. An article in accordance with Claim 14, wherein said  $\{100\}<100>$  orientation is at an angle of about  $45^\circ$  relative to the ideal cube texture orientation.
16. An article in accordance with Claim 13, wherein said substrate is further characterized by an x-ray diffraction phi scan peak of no more than  $20^\circ$  FWHM.
17. An article in accordance with Claim 13, wherein said substrate further comprises grains having an average size of no more than  $10\ \mu\text{m}$ .
18. An article in accordance with Claim 17, wherein said substrate further comprises grains having an average size of no more than  $5\ \mu\text{m}$ .
19. An article in accordance with Claim 18, wherein said substrate further comprises grains having an average size of no more than  $1\ \mu\text{m}$ .
20. An article in accordance with Claim 13, wherein said substrate further comprises grains having an aspect ratio of at least 10.
21. An article in accordance with Claim 13, wherein said substrate is further characterized by a brick-floor microstructure.
22. An article in accordance with Claim 13 wherein said another material comprises at least one of the group consisting of electromagnetic devices and electro-optical devices.

23. An article in accordance with Claim 22, wherein said device further comprises a superconducting material.
24. An article in accordance with Claim 23, wherein said device further comprises a ferroelectric material.
25. A textured article comprising a textured metallic substrate characterized by a rotated cube texture, said substrate being further characterized by a brick-floor microstructure, said substrate having thereon at least one epitaxial layer of another material.
26. An article in accordance with claim 25, wherein said substrate is biaxially textured and is characterized by a x-ray diffraction phi scan peak of no more than 20° FWHM.
27. An article in accordance with Claim 25, wherein said substrate comprises grains having an aspect ratio of at least 10.
28. An article in accordance with Claim 25 wherein said another material comprises at least one of the group consisting of electromagnetic devices and electro-optical devices.
29. An article in accordance with Claim 28, wherein said device comprises a superconducting material.
30. An article in accordance with Claim 28, wherein said device comprises a ferroelectric material.

31. A method of preparing a biaxially textured article comprising the steps of:
  - a. rolling a metal preform while applying shear force thereto to form as-rolled biaxially textured substrate having an a rotated cube texture wherein a (100) cube face thereof is parallel to a surface of said substrate, and wherein a [100] direction thereof is at an angle of at least  $10^{\circ}$  relative to the rolling direction;
  - b. depositing onto said surface of said biaxially textured substrate at least one epitaxial layer of another material to form a biaxially textured article.
32. A method in accordance with Claim 31, wherein said [100] direction is at an angle of at least  $30^{\circ}$  to the rolling direction.
33. A method in accordance with Claim 32, wherein said [100] direction is at an angle of about  $45^{\circ}$  to the rolling direction.
34. A method in accordance with Claim 31, wherein said as-rolled substrate is further characterized by an x-ray diffraction phi scan peak of no more than  $20^{\circ}$  FWHM.
35. A method in accordance with Claim 31, wherein said as-rolled substrate further comprises grains having an average size of no more than  $10\text{ }\mu\text{m}$ .
36. A method in accordance with Claim 35, wherein said as-rolled substrate further comprises grains having an average size of no more than  $5\text{ }\mu\text{m}$ .
37. A method in accordance with Claim 36, wherein said as-rolled substrate further comprises grains having an average size of no more than  $1\text{ }\mu\text{m}$ .

38. A method in accordance with Claim 31, wherein said as-rolled substrate further comprises grains having an aspect ratio of at least 10.
39. A method in accordance with Claim 31 wherein said another material comprises at least one of the group consisting of electromagnetic devices and electro-optical devices.
40. A method in accordance with Claim 39, wherein said device further comprises a superconducting material.
41. A method in accordance with Claim 39, wherein said device comprises a ferroelectric material.